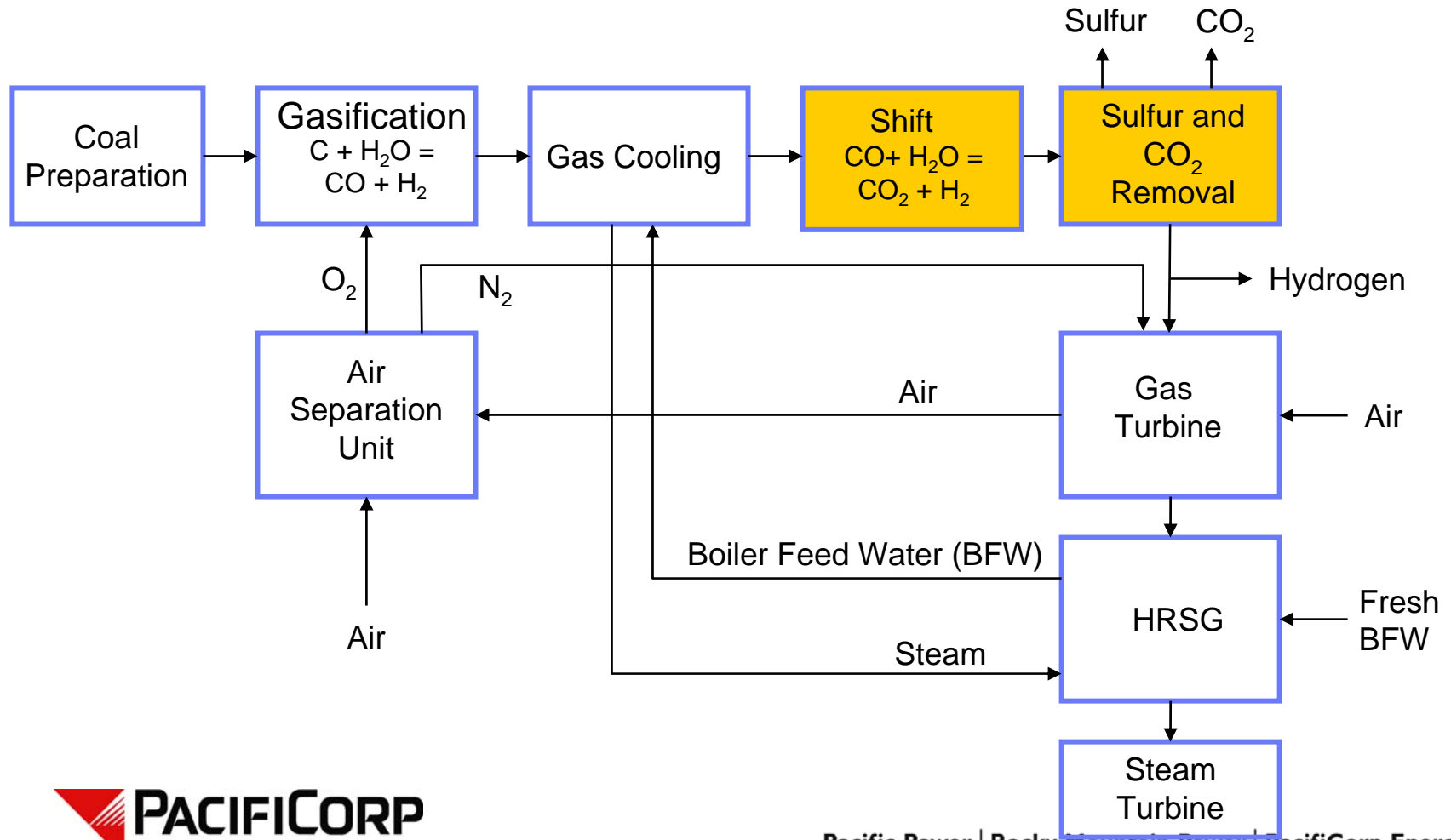


IGCC with CO₂ Capture



Water Use Considerations

- Lack of information in published studies on the water use required with an optimized IGCC CO₂ capture process
- Worst Case is presented
- Water balance optimization could reduce increase in water use through additional recycling.
- High quality water for the shift reactor will be needed.

IGCC Water Use with Carbon Capture

- $\text{CO} + \text{H}_2\text{O} \longrightarrow \text{CO}_2 + \text{H}_2$
- For a Hunter 4 IGCC
 - ▶ 508 MW capacity
 - ▶ 3,585,000 tons of CO_2 per year without capture
 - Water use = 4,500 ac-ft/yr
 - ▶ 90% capture = 3,225,000 tons of CO_2 per year removed
 - ▶ Worst Case:
 - 907,000 tons of water a year based on above equation
 - 414 gpm equivalent water usage
 - 675 ac-ft/yr additional
 - Increase in water use ~ 15%